

S/N: 10/553,132  
Reply to Office Action of August 6, 2007

Atty Dkt No. HESL0101PUSA

### Remarks

Claims 13-20 are pending in the present application. In an Office Action mailed October 3, 2007, the Examiner rejected claims 13-20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 7,050,671 to Zhang et al. (hereforth Zhang) in view of U.S. Patent Number 6,529,326 B2 to Cai, (hereforth Cai). Applicant respectfully disagrees with the Examiner's rejection and seeks reconsideration in light of the following remarks.

Independent claim 13 provides an optical device having a first combination of birefringent wedges with *parallel* optic axes for dividing an optical input beam into polarized beams, a second combination of birefringent wedges with *parallel* optic axes for combining polarized beams into an output beam, and a polarization changer disposed between the first and second wedge combinations.

The Examiner rejected claim 13, stating that Zhang does not specifically disclose that the birefringent prisms are wedge shaped, and citing wedges of Cai as a substitute for prisms of Zhang. The wedges of Cai (figure 3, elements 340 and 342) are prior art from U.S. Patent Number 5,812,710 to Sugaya (hereforth Sugaya). These wedges are shown by Sugaya in figures 6 and 7a-7c and described in col. 6, line 51 to col. 7, line 8. Figures 6 and 7 of Sugaya are provided below:

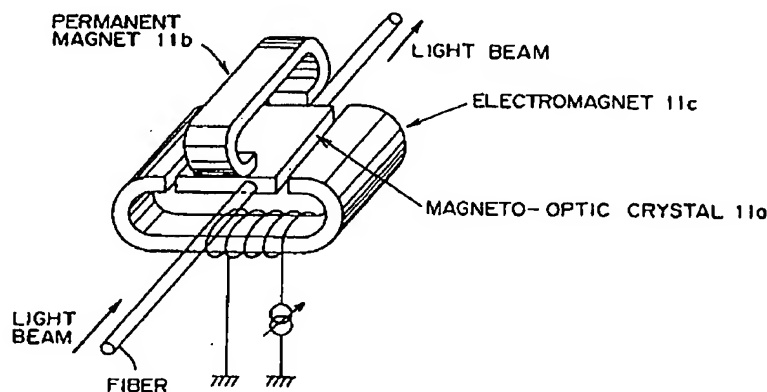


FIG. 6

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FIG. 7A

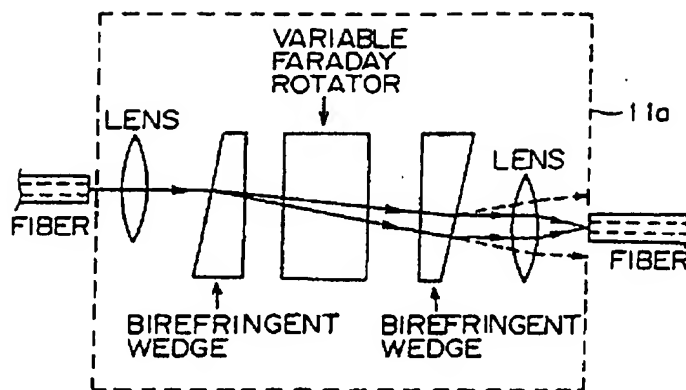


FIG. 7B

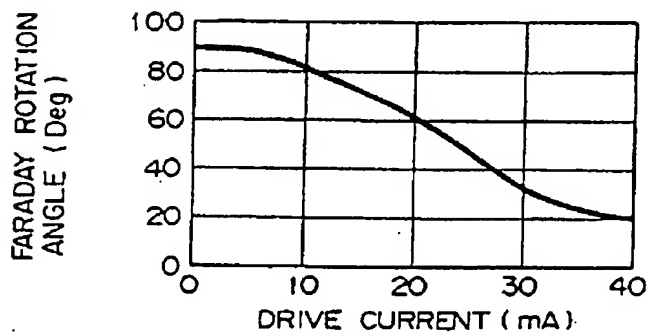
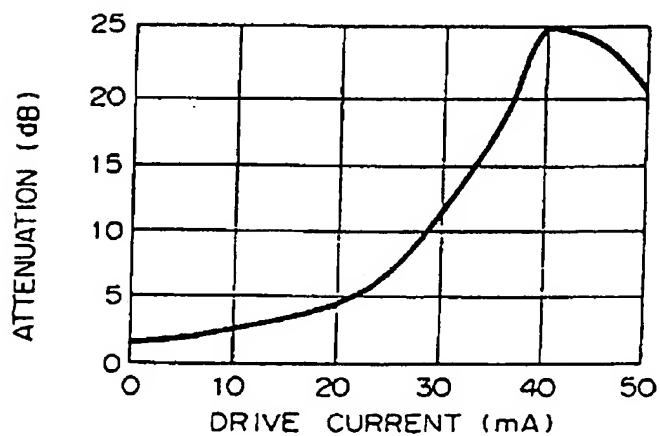


FIG. 7C



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Permanent magnet 11b in figure 6 causes polarized components of rays passing through magneto-optic crystal 11a to be rotated. When the drive current of electromagnet 11c is zero, Faraday rotation caused by permanent magnet 11b is 90 degrees, as shown above in figure 7b. For rays to emerge along solid black lines and enter fiber, as shown above in Figure 7a, and therefore for the device to provide minimum attenuation as shown in Figure 7c, the optic axes of the wedges have to be oriented at 90 degrees to one another. If the wedges' in Sugaya have parallel optic axes, as claimed in the present application, the rays emerge from the second wedge in Figure 7a highly attenuated along the dashed lines and do *not* combine into an output beam. These wedges are therefore contrary to the wedges of the present application and would not be of use to Zhang.

For at least the reasons mentioned above, claim 13 is not an obvious combination of Zhang and Sugaya. Claim 13 is therefore patentable under 35 U.S.C. §103(a) over Zhang in view of Sugaya. Claims 14-20, which depend from claim 13, are therefore also patentable.


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Claims 13-20 are pending in the present application. Applicant believes these claims meet all substantive requirements for patentability and respectfully requests that this case be passed to issuance. No fee is believed due by filing this paper. However, any fee due may be withdrawn from our Deposit Account No. 02-3978.

The Examiner is invited to contact the undersigned to discuss any aspect of this case.

Respectfully submitted,  
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